

DISCUSSION OF THE AMENDMENTS

The amendments to the specification were to correct minor typographical errors, and therefore, no new matter has been added by the amendments.

REMARKS/ARGUMENTS

Applicants would like to thank Examiner Puttlitz for the helpful and courteous discussion he had with Applicants' U.S. representative on June 14, 2005. At that time, Applicants' U.S. representative explained the differences between the claimed process and the cited references. Specifically, Chaturvedi (U.S. 6,407,280) teaches away from the catalyst composition of the claimed process, and therefore, the claimed process would not be obvious over Chaturvedi. In addition, Bogan (U.S. 6,781,008) and Borgmeier (U.S. 6,867,328) fail to specifically teach the catalyst composition of the claimed process, and therefore, the claimed process would not be obvious over these references. The following is intended to expand upon the discussion.

Chaturvedi describes a mixed metal oxide catalyst and a process for forming acrylic acid. The catalyst described in Chaturvedi is characterized by an X-ray diffraction pattern with a diffraction peak at $2\theta = 50.0^\circ$ (see column 1, line 64 and column 7, line 9). The presently claimed process utilizes a catalyst with no X-ray diffraction peak at $2\theta = 50.0$ and Claim 1 specifically excludes such a diffraction peak. As such, Chaturvedi teaches away from the claimed process, and therefore, the claimed process would not be obvious over Chaturvedi. In addition, as noted during the June 14th discussion, catalyst formulations without the diffraction peak at $2\theta = 50.0^\circ$ give better performance than similar catalysts formulations with the diffraction peak at $2\theta = 50.0^\circ$ (see the Table on page 29 of the specification). Accordingly, Applicants respectfully request that the Examiner withdraw the rejection under 35 U.S.C. §103(a) over Chaturvedi.

Both Bogan and Borgmeier describe a 4-metal component catalyst containing Mo, V, Te and Nb and a process for forming acrylic acid (see Examples in columns 15 and 16 of Bogan and Examples in columns 13-15 of Borgmeier). In contrast, the presently claimed

process utilizes a 5-metal component catalyst. Therefore, Bogan and Borgmeier do not teach the presently claimed process, and accordingly, the claimed process would not be obvious over Bogan or Borgmeier.

In addition, Applicants note that the 5-metal component catalyst of the claimed process gives superior results over a 4-metal catalyst similar to that described in Bogan and Borgmeier. These results, given in the specification, are summarized below (see also the Table on page 29 of the specification).

The results listed are for various catalyst compositions which were utilized as catalysts for the conversion of acrolein and propene to acrylic acid. The catalysts include catalyst formulations according to the claimed process (B1-B7) and the 4-metal catalyst compositions similar to those described in Bogan and Borgmeier (VB8 and VB9). The selectivities for formation of acrylic acid were determined for each catalyst. Note that the higher the selectivity for acrylic acid, the better the performance of the catalyst.

SELECTIVITY FOR THE FORMATION OF ACRYLIC ACID

Example	Composition	Selectivity (mol%) for acrylic acid
B1	Mo ₁ V _{0.29} Te _{0.14} Nb _{0.13} Ni _{0.007}	95.5
B2	Mo ₁ V _{0.28} Te _{0.13} Nb _{0.13} Pd _{0.001}	95.1
B3	Mo ₁ V _{0.29} Te _{0.13} Nb _{0.13} Pd _{0.001}	95.6
B4	Mo ₁ V _{0.29} Te _{0.13} Nb _{0.13} Co _{0.004}	95.1
B5	Mo ₁ V _{0.28} Te _{0.13} Nb _{0.13} Cu _{0.003}	93.9
B6	Mo ₁ V _{0.28} Te _{0.15} Nb _{0.14} Bi _{0.005}	94.6
B7	Mo ₁ V _{0.28} Te _{0.13} Nb _{0.13} Pb _{0.001}	94.1
VB8	Mo ₁ V _{0.33} Te _{0.16} Nb _{0.11}	88
VB9	Mo ₁ V _{0.29} Te _{0.13} Nb _{0.13}	91.9

As the data clearly shows, the 5-metal component catalysts of the claimed process (B1-B7) give higher selectivities for acrylic acid over a 4-metal component catalyst similar to that described in Bogan and Borgmeier. Accordingly, the claimed process would not be obvious over Bogan or Borgmeier.

Overall, Bogan and Borgmeier do not teach the claim limitations of the claimed process and the claimed process provides superior results over the compositions described in the references. Therefore, the claimed process would not be obvious over these references, and accordingly, Applicants respectfully request that the Examiner withdraw the rejections under 35 U.S.C. §103(a) over Bogan and Borgmeier.

The Examiner has provisionally rejected Claims 1-27 under the judicially created doctrine of obviousness-type double patenting over Claim 11 of copending application No. 10/647,335.

Applicants respectfully request that the provisional rejection for obviousness-type double patenting be held in abeyance. U.S. 10/647,335 is not a patent, and therefore, the claims issuing therefrom are not certain. If the provisional rejection is the only remaining rejection, the Examiner is invited to withdraw the rejection and permit the present application to issue, converting any provisional rejection in 10/647,335 into a double patenting rejection (M.P.E.P. §804 I.B.).

Finally, Applicants note that certified copies of the priority documents were filed on February 2, 2004.

Applicants respectfully submit that the present application is now in condition for allowance and favorable reconsideration is respectfully requested.

Application No. 10/667,786
Reply to Office Action of May 5, 2005.

Should anything further be required to place the application in condition for allowance, the Examiner is requested to contact the undersigned.

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